

Rapid Assessment Reference Condition Model

The Rapid Assessment is a component of the LANDFIRE project. Reference condition models for the Rapid Assessment were created through a series of expert workshops and a peer-review process in 2004-2005. For more information, please visit www.landfire.gov. Please direct questions to helpdesk@landfire.gov.

Potential Natural Vegetation Group (PNVG):

R0SBDW

Low Sagebrush Shrubland

General Information

Contributors (additional contributors may be listed under "Model Evolution and Comments")

Modelers

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Vegetation Type

Shrubland

Dominant Species*

ARAR8
ARNO4
FEID
PSSP6

General Model Sources

- Literature
 Local Data
 Expert Estimate

LANDFIRE Mapping Zones

| | | |
|----|----|----|
| 10 | 21 | 23 |
| 19 | 22 | 28 |
| 20 | 29 | |

Rapid Assessment Model Zones

- | | |
|--|---|
| <input type="checkbox"/> California | <input type="checkbox"/> Pacific Northwest |
| <input type="checkbox"/> Great Basin | <input type="checkbox"/> South Central |
| <input type="checkbox"/> Great Lakes | <input type="checkbox"/> Southeast |
| <input type="checkbox"/> Northeast | <input type="checkbox"/> S. Appalachians |
| <input type="checkbox"/> Northern Plains | <input checked="" type="checkbox"/> Southwest |
| <input checked="" type="checkbox"/> N-Cent.Rockies | |

Geographic Range

Patchy and discontinuous distribution throughout other sagebrush communities in eastern Montana, Wyoming, the Great Basin, and the Southwest.

Biophysical Site Description

This type is dominated by low growing sagebrushes found on poor, shallow soils in desert areas, dry mountain valleys, and shallow soils in foothills. Soils are often saturated during part of the year. An impermeable clay or rock layer is often present. Elevations range from 4000 - 7000.

Vegetation Description

This type includes communities dominated by black Sagebrush (*Artemisia nova*), low sagebrush (also called early sagebrush; (*Artemisia arbuscula*). Although these types do not usually grow in combination, they do share similar fire regimes. Low sagebrushes have very sparse fuels with low growing and cushion forbs and widely scattered bunch grasses.

Grasses in areas with higher precipitation include Idaho fescue (*Festuca idahoensis*), bluebunch wheatgrass (*Pseudoroegneria spicata*), and Letterman's needlegrass (*Achnatherum lettermanii*). In areas with less precipitation, common grasses include bottlebrush squirreltail (*Elymus elymoides*), and rhizomatous wheatgrasses, including bluebunch wheatgrass (*Pseudoroegneria spicata*).

Disturbance Description

Due to sparse and discontinuous fuels, this type experiences very infrequent fire and exhibits few fire adaptations (Fire Regime Group IV or V). Fire history information is limited for low sagebrush communities. Average fire return intervals reported for little sagebrush (*Artemisia arbuscula*) range from

*Dominant and Indicator Species are from the NRCS PLANTS database. To check a species code, please visit <http://plants.usda.gov>.

about 40 years (Steinberg 2002) to more than 400 (Baker in press), and is probably strongly related to the fire regimes of surrounding vegetation communities. There was disagreement among reviewers about the frequency of fire for this type (see also the Comments field); the original fire regime of 125 years was retained, but one review suggested using a MFI of 400 years.

Weather events such as drought and high precipitation cycles probably play a role in successional changes, and are modeled here as affecting 0.1% of the landscape each year and cause a transition from the late-development class (B) to the early-development stage (A).

Adjacency or Identification Concerns

This type is found in patches within the mountain big sage, Wyoming big sage, and desert shrub vegetation types.

Scale Description

Sources of Scale Data Literature Local Data Expert Estimate

Little information exists about historical disturbances in this system. Patch sizes were probably less than 500 acres and interspersed in other vegetation communities.

Issues/Problems

Model Evolution and Comments

Workshop code was DSAG.

This PNVG replaces the PNVG R3SBBL for the Southwest model zone because the two types are very similar.

Peer review was incorporated on 4/29/2005. Additional reviewer was Dennis Knight (dhknight@uwo.edu). Peer reviewers disagreed about the frequency of fire in this system. The majority agreed with the original 125 year average; one review suggested using a 400 year average. The original MFI of 125 years was retained, but descriptive information was added to the Disturbance Description section. Note that changing the fire frequency from 125 years to 400 years results in just 5% change in the model results for the percent of the landscape in each class (class A would be 10% instead of 15%; B would be 90% in stead of 85%.)

Succession Classes
Succession classes are the equivalent of "Vegetation Fuel Classes" as defined in the Interagency FRCC Guidebook (www.frcc.gov).

Class A 15%

Early1 PostRep

Description

Dominated by grasses. Less than 5% cover of shrubs. This class lasts approximately 20 years post disturbance and then succeeds to late-development conditions (class B).

Indicator Species* and Canopy Position

PSSP6
FEID

Upper Layer Lifeform

- Herbaceous
- Shrub
- Tree

Fuel Model no data

Structure Data (for upper layer lifeform)

| | Min | Max |
|-----------------|---------|---------|
| Cover | 0 % | 5 % |
| Height | no data | no data |
| Tree Size Class | no data | |

Upper layer lifeform differs from dominant lifeform. Height and cover of dominant lifeform are:

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Class B 85%

Late1 Open

Description

Dominated by shrub species with >5% cover. Fire or weather events cause a transition to early-development conditions (class A), but otherwise this class persists indefinitely.

Indicator Species* and Canopy Position

ARAR8
ARNO4
PSSP6
FEID

Upper Layer Lifeform

- Herbaceous
- Shrub
- Tree

Fuel Model no data

Structure Data (for upper layer lifeform)

| | Min | Max |
|-----------------|---------|---------|
| Cover | 5 % | 100 % |
| Height | no data | no data |
| Tree Size Class | no data | |

Upper layer lifeform differs from dominant lifeform. Height and cover of dominant lifeform are:

Class C 0%

Mid1 Open

Description

Indicator Species* and Canopy Position

Upper Layer Lifeform

- Herbaceous
- Shrub
- Tree

Fuel Model no data

Structure Data (for upper layer lifeform)

| | Min | Max |
|-----------------|---------|---------|
| Cover | % | % |
| Height | no data | no data |
| Tree Size Class | no data | |

Upper layer lifeform differs from dominant lifeform. Height and cover of dominant lifeform are:

Class D 0%

Late1 Open

Description

Indicator Species* and Canopy Position

Upper Layer Lifeform

- Herbaceous
- Shrub
- Tree

Fuel Model no data

Structure Data (for upper layer lifeform)

| | Min | Max |
|-----------------|---------|---------|
| Cover | % | % |
| Height | no data | no data |
| Tree Size Class | no data | |

Upper layer lifeform differs from dominant lifeform. Height and cover of dominant lifeform are:

Class E 0%

Late1 Open

Description

Indicator Species* and Canopy Position

Structure Data (for upper layer lifeform)

| | Min | Max |
|-----------------|---------|---------|
| Cover | % | % |
| Height | no data | no data |
| Tree Size Class | no data | |

*Dominant and Indicator Species are from the NRCS PLANTS database. To check a species code, please visit <http://plants.usda.gov>.

Upper Layer Lifeform

Upper layer lifeform differs from dominant lifeform.
Height and cover of dominant lifeform are:

- Herbaceous
- Shrub
- Tree

Fuel Model no data

Disturbances

Non-Fire Disturbances Modeled

- Insects/Disease
- Wind/Weather/Stress
- Native Grazing
- Competition
- Other:
- Other:

Fire Regime Group: 4

- I: 0-35 year frequency, low and mixed severity
- II: 0-35 year frequency, replacement severity
- III: 35-200 year frequency, low and mixed severity
- IV: 35-200 year frequency, replacement severity
- V: 200+ year frequency, replacement severity

Historical Fire Size (acres)

Avg:
Min:
Max:

Fire Intervals (FI):

Fire interval is expressed in years for each fire severity class and for all types of fire combined (All Fires). Average FI is the central tendency modeled. Minimum and maximum show the relative range of fire intervals, if known. Probability is the inverse of fire interval in years and is used in reference condition modeling. Percent of all fires is the percent of all fires in that severity class. All values are estimates and not precise.

Sources of Fire Regime Data

- Literature
- Local Data
- Expert Estimate

| | Avg FI | Min FI | Max FI | Probability | Percent of All Fires |
|-------------|--------|--------|--------|-------------|----------------------|
| Replacement | 125 | 60 | 150 | 0.008 | 100 |
| Mixed | | | | | |
| Surface | | | | | |
| All Fires | 125 | | | 0.00802 | |

References

Baker, W. L. In press. Fire and restoration of sagebrush ecosystems. Wildlife Society Bulletin, in press.

Steinberg, Peter D. 2002. Artemisia arbuscula. In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: <http://www.fs.fed.us/database/feis/> [2005, April 29].

Wyoming Interagency Vegetation Committee. 2002. Wyoming Guidelines for Managing Sagebrush Communities with Emphasis on Fire Management. Wyoming game and Fish Department and Wyoming BLM. Cheyenne, WY. 53 pp.